WHAT IS CLAIMED IS:

1. A method of cloning a mammal, comprising:

(i) inserting a desired differentiated mammalian cell or cell nucleus into an enucleated mammalian oocyte of the same species as the differentiated cell or cell nucleus, under conditions suitable for the formation of a nuclear transfer (NT) unit;

(ii) activating the resultant nuclear transfer unit;

(iii) culturing said activated nuclear transfer unit until greater than the 2-cell developmental stage; and

(iv) transferring said cultured NT unit to a host mammal such that the NT unit develops into a fetus.

2. The method according to claim 1, which further comprises developing the fetus to an offspring.

3. The method according to claim 1, wherein a desired DNA is inserted, removed or modified in said differentiated mammalian cell or cell nucleus, thereby resulting in the production of a genetically altered NT unit.

4. The method according to claim 3, which further comprises developing the fetus to an offspring.

5. The method according to claim 1, wherein the differentiated mammalian cell or cell nucleus is derived from mesoderm.

6. The method according to claim 1, wherein the differentiated mammalian cell or cell nucleus is derived from ectoderm.

7. The method according to claim 1, wherein the differentiated mammalian cell or cell nucleus is derived from endoderm.

8. The method according to claim 1, wherein the differentiated mammalian cell or cell nucleus is a fibroblast cell or cell nucleus.

9. The method according to claim 1, wherein the differentiated mammalian cell or cell nucleus is from an ungulate.

10. The method according to claim 9, wherein the ungulate is selected from the group consisting of bovine, ovine, porcine, equine, caprine and buffalo.

11. The method according to claim 1, wherein the differentiated mammalian cell or cell nucleus is an adult cell or cell nucleus.

12. The method according to claim 1, wherein the differentiated mammalian cell or cell nucleus is an embryonic or fetal cell or cell nucleus.

13. The method according to claim 1, wherein the enucleated oocyte is matured prior to enucleation.

14. The method according to claim 1, wherein the fused nuclear transfer unit is activated by exposure to ionomycin and 6-dimethylaminopurine.

15. The method according to claim 3, wherein microinjection is used to insert a heterologous DNA.

16. The method according to claim 3, wherein electroporation is used to insert a heterologous DNA.

17. A fetus obtained according to the method of claim 1.

18. An offspring obtained according to the method of claim 2.

19. Progeny of the offspring according to claim 18.

20. A transgenic fetus obtained according to the method of claim 3.

21. A transgenic offspring obtained according to the method of claim 4.

22. Progeny of the offspring according to claim 21.

23. The method according to claim 1, which further comprises combining the cloned NT unit with a fertilized embryo to produce a chimeric embryo.

24. The method according to claim 23, which further comprises developing the fetus to an offspring.

25. A fetus obtained according to the method of claim 23.

26. An offspring obtained according to the method of claim 24.

27. Progeny of the mammal according to claim 26.

28. A method of producing a CICM cell line, comprising:

(i) inserting a desired differentiated mammalian cell or cell nucleus into an enucleated mammalian oocyte of the same species as the differentiated cell or cell nucleus, under conditions suitable for the formation of a nuclear transfer (NT) unit;

(ii) activating the resultant nuclear transfer unit;

(iii) culturing said activated nuclear transfer unit until greater than the 2-cell developmental stage; and

(iv) culturing cells obtained from said cultured NT unit to obtain a CICM cell line.

29. A CICM cell line obtained according to the method of claim 28.

30. The method according to claim 28, wherein a desired DNA is inserted, removed or modified in said differentiated mammalian cell or cell nucleus, thereby resulting in the production of a genetically altered NT unit.

31. A transgenic CICM cell line obtained according to claim 30.

32. The method of claim 28, wherein the resultant CICM cell line is induced to differentiate.

33. Differentiated cells obtained by the method of claim 32.

34. Human differentiated cells obtained by the method of claim 32.

35. A method of therapy which comprises administering to a patient in need of cell transplantation therapy isogenic differentiated cells according to claim 34.

36. The method of Claim 35, wherein said cell transplantation therapy is effected to treat a disease or condition selected from the group consisting of Parkinson's disease, Huntington's disease, Alzheimer's disease, ALS, spinal cord defects or injuries, multiple sclerosis, muscular dystrophy, cystic fibrosis, liver disease, diabetes, heart disease, cartilage defects or injuries, burns, foot ulcers, vascular disease, urinary tract disease, AIDS and cancer.

37. A method of therapy which comprises administering to a human patient in need of cell

transplantation therapy xenogenic differentiated cells according to claim 33.

38. The method according to claim 37 wherein the xenogenic differentiated cells are bovine cells.

39. The method of Claim 37, wherein said cell transplantation therapy is effected to treat a disease or condition selected from the group consisting of Parkinson's disease, Huntington's disease, Alzheimer's disease, ALS, spinal cord defects or injuries, multiple sclerosis, muscular dystrophy, cystic fibrosis, liver disease, diabetes, heart disease, cartilage defects or injuries, burns, foot ulcers, vascular disease, urinary tract disease, AIDS and cancer.

40. The method of Claim 35, wherein the differentiated human cells are hematopoietic cells or neural cells.

41. The method of Claim 35, wherein the therapy is for treatment of Parkinson's disease and the differentiated cells are neural cells.

42. The method of Claim 35, wherein the therapy is for the treatment of cancer and the differentiated cells are hematopoietic cells.

43. A method of therapy which comprises administering to a human patient in need of cell transplantation therapy xenogenic cells obtained from a fetus according to claim 17.

44. The method according to claim 43 wherein the xenogenic cells are bovine cells.

45. The method of Claim 43, wherein said cell transplantation therapy is effected to treat a disease or condition selected from the group consisting of Parkinson's disease, Huntington's disease, Alzheimer's disease, ALS, spinal cord defects or injuries, multiple sclerosis, muscular dystrophy, cystic fibrosis, liver disease, diabetes, heart disease, cartilage defects or injuries, burns, foot ulcers, vascular disease, urinary tract disease, AIDS and cancer.

46. A method of therapy which comprises administering to a human patient in need of cell transplantation therapy xenogenic cells obtained from an offspring according to claim 18.

47. The method according to claim 46 wherein the xenogenic cells are bovine cells.

48. The method of Claim 46, wherein said cell transplantation therapy is effected to treat a disease or condition selected from the group consisting of Parkinson's disease, Huntington's disease, Alzheimer's disease, ALS, spinal cord defects or injuries, multiple sclerosis, muscular dystrophy, cystic fibrosis, liver disease, diabetes, heart disease, cartilage defects or injuries, burns, foot ulcers, vascular disease, urinary tract disease, AIDS and cancer.

49. A method of therapy which comprises administering to a human patient in need of cell transplantation therapy xenogenic transgenic cells obtained from a transgenic fetus according to claim 20.

50. The method according to claim 49 wherein the xenogenic transgenic cells are bovine cells.

51. The method of Claim 49, wherein said cell transplantation therapy is effected to treat a disease or condition selected from the group consisting of Parkinson's disease, Huntington's disease, Alzheimer's disease, ALS, spinal cord defects or injuries, multiple sclerosis, muscular dystrophy, cystic fibrosis, liver disease, diabetes, heart disease, cartilage defects or injuries, burns,

foot ulcers, vascular disease, urinary tract disease, AIDS and cancer.

52. A method of therapy which comprises administering to a human patient in need of cell transplantation therapy xenogenic transgenic cells obtained from a transgenic offspring according to claim 21.

53. The method according to claim 52 wherein the xenogenic transgenic cells are bovine cells.

54. The method of Claim 52, wherein said cell transplantation therapy is effected to treat a disease or condition selected from the group consisting of Parkinson's disease, Huntington's disease, Alzheimer's disease, ALS, spinal cord defects or injuries, multiple sclerosis, muscular dystrophy, cystic fibrosis, liver disease, diabetes, heart disease, cartilage defects or injuries, burns, foot ulcers, vascular disease, urinary tract disease, AIDS and cancer.

55. The method according to claim 28, which further comprises combining the cloned NT unit with a fertilized embryo to produce a chimera.

56. The method according to claim 55, which further comprises developing the chimeric CICM cell line to a chimeric embryo.

57. A chimeric embryo obtained according to claim 56.

58. The method according to claim 56, which further comprises developing the chimeric embryo to a chimeric fetus.

59. A chimeric fetus obtained according to claim 58.

60. The method according to claim 58, which further comprises developing the chimeric fetus to a chimeric offspring.

61. A chimeric offspring obtained according to claim 60.

62. The method according to claim 55, wherein a desired DNA is inserted, removed or modified in said differentiated mammalian cell or cell nucleus, thereby resulting in the production of a genetically altered NT unit.

63. The method according to claim 62, which further comprises developing the chimeric CICM cell line to a chimeric embryo.

64. A chimeric embryo obtained according to claim 63.

65. The method according to claim 63, which further comprises developing the chimeric embryo to a chimeric fetus.

66. A chimeric fetus obtained according to claim 65.

67. The method according to claim 65, which further comprises developing the chimeric fetus to a chimeric offspring.

68. A chimeric offspring obtained according to claim 67.

69. A method of cloning a mammal, comprising:

(i) inserting a desired differentiated CICM cell or cell nucleus into an enucleated mammalian oocyte of the same species as the differentiated CICM cell or cell nucleus, under conditions suitable for the formation of a nuclear transfer (NT) unit;

(ii) activating the resultant nuclear transfer unit;

(iii) culturing said activated nuclear transfer unit until greater than the 2-cell developmental stage; and

(iv) transferring said cultured NT unit to a host mammal such that the NT unit develops into a fetus.

70. The method according to claim 69, which further comprises developing the fetus to an offspring.

71. A fetus obtained according to the method of claim 69.

72. An offspring obtained according to the method of claim 70.

73. An organ for use as an organ xenograft, which is obtained from the offspring according to claim 18.

74. An organ for use as an organ xenograft, which is obtained from the offspring according to claim 21.

75. An organ for use as an organ xenograft, which is obtained from the offspring according to claim 26.

76. An organ for use as an organ xenograft, which is obtained from the offspring according to claim 68.

77. An organ for use as an organ xenograft, which is obtained from the offspring according to claim 72.

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